



Master Computer Science

Introduction

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Goals of the Master Program

Broad Education

↪ you have to choose modules from multiple areas

Deep Education

- we encourage specialization
- focus colloquium

Independence

- You are responsible for your studies!
- no fixed study plan
- no mandatory courses

Qualification

- for leadership positions
- for PhD

Overview

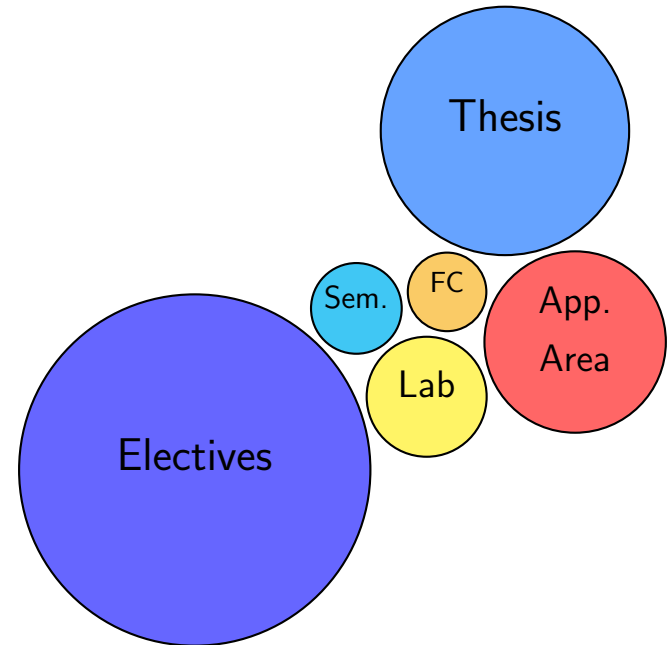
Structure of the Master Program

Electives	58 – 66 CP
Seminar	4 CP
Lab	7 CP
Focus Colloquium	3 CP
Application Area	10 – 18 CP
Thesis	30 CP
Course on Scientific Integrity	0 CP
Requirements	0 – 42 CP
Voluntary Additional Courses	0 – ∞ CP

Σ ≥ 120 CP + Requirements

> 120 CP

all courses count fully, or not at all



Electives

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Electives

Areas

Theoretical CS	Visual Computing & Interaction	AI & Data	Software Methods & Tools	Hardware/Software Systems
≥ 12 CP	two times ≥ 12 CP			
Algorithms Logic Verification ...	Computer Graphics VR Computer Vision ...	Language Processing Data Science Machine Learning ...	Project Management Quality Assurance HPC ...	IT-Security Embedded Systems Internet Technology ...

only electives count for the limits above

Electives

General Information

Components

lecture	typically 3h/week
exercise	typically 1-2h/week
exam	at end of semester

Admission for Exams

- teachers fix admission criteria
 - achieve minimum score in exercises
 - midterm exam
 - ...
- admission valid for only one year

Registration

- via RWTH Online
 - you automatically get access to RWTHmoodle, mailing list, ...
- no unified registration period
- ⚡ separate registration for exam!

Always go to the first lecture!

RWTH Online

Campus Management System

- overview of courses for...
 - the current semester
 - the whole master program
- registration for most modules & exams
- overview of grades
- calendar with your courses
- ...

URLs

- RWTH Online: <https://online.rwth-aachen.de>
- Manuals: <https://wiki-intern.rwth-aachen.de/display/RD/FAQ+for+Students>

Registration – Live Demo

RWTH Online – Test System

SPO Context

The screenshot shows the RWTHonline interface for course registration. At the top, the RWTH Aachen University logo and 'RWTHonline' are visible, along with the user name 'HARRY FELD' and 'DE'. The navigation path is 'Course registration'. A progress bar shows two steps, with the second step (2) being the current one.

The main content area is titled 'Study Programme *' and 'Biologie'. The course 'Bau der Organismen I (Tiere) - Vorlesung' is listed as 'not registered'. Key details include:

- Registration period: from 01.08.19, 00:00 to 29.03.20, 23:59
- Deregistration: to 29.03.20, 23:59
- Ranking options: 1. Los (lang)
- Participants: 100 Maximal number of participants for the procedure
- Date of Allocation: -

Informational messages state: 'Registration is performed for all course groups.' and 'Registration not possible for all course groups. Please select a permitted SPO context.'

The course entry '16.03691 Bau der Organismen I (Tiere) - Vorlesung' is expanded, showing a dropdown menu for 'Please select the SPO context...'. The menu options are:

- [2017] Biology
- Compulsory modules
- [1612805] Organisms
- Vorlesung: Bau der Organismen I (Tiere) (indicated by a red arrow)
- Free registration

Below the dropdown, the course details for 'Standardgruppe' (max. 150 Participants) are shown:

- Lecturer: Baumann, Samuel; Franzen, Yasemin; Mathar, Artem
- Dates: TUE, 08.10.2019, 08:30 - 10:00; Aula 2 (2352|021)
- ... show all

Electives

Exams

General Information

- written or oral
- 2 exams at end of semester
 - might differ in application area
- you cannot repeat passed exams
- after 3 failures: choose different elective

Registration

- separate registration for **each** exam
- standard registration periods
 - 1st exam: 1.4. – 15.7. / 1.10. – 15.12.
 - 2nd exam: until 7 days before the exam
- ⚡ Teachers may modify these dates!
- registration for 2nd exam after results of 1st exam were published

Deregistration – <https://www.rwth-aachen.de/go/id/eir/lidx/1>

Until 3 working days before. If you are ill...

- doctor's certificate issued on or before the day of the exam
- must indicate that you cannot take exams on that day
- ⚡ No “not fit for work” certificates!
- must be at ZPA on the 3rd working day after the exam

Electives

Central Examination Office Zentrales Prüfungsamt (ZPA)

What they do

- examination administration
- recording of grades
- exam registrations
- exam deregistrations / withdrawal
- admission check for thesis
- issues various certificates
- ...

Registration – Live Demo

RWTH Online – Test System

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Seminar and Lab

What it is about

offered by all CS-chairs, various topics

Seminar

- independent work (with supervision)
 - ↪ no collaboration with other students
- topic from the literature
- written report & presentation
- usually as “Blockseminar”
 - ↪ all talks within a few days after lecture period
- (rare) alternative: weekly meetings

Lab

- collaborate in small groups
- usually software projects
- details differ, depending on the organizer
- ⚡ No industry internships!

Organizational Matters

General Information

- starts with kickoff-meeting
- seminar / lab passed ↪ you cannot take another one
- withdrawal possible until 3 weeks after distribution of topics
 - ⚡ Soon: 1 week!
- ⚡ 3 fails ↪ end of studies!

Registration – <https://supra.informatik.rwth-aachen.de/>

- central distribution system
- registration in June/July for winter term, December/January for summer term
- further information in kickoff-meeting

Focus Colloquium

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Focus Colloquium

What it is about

- oral exam
- 3 courses
- topics must be connected
 - electives you've done ✓
 - electives you've done during your bachelor ✓
 - electives you haven't done ✓
 - seminar ✓
 - lab ✓
 - courses from different professors ✓
 - courses from different research groups ✓
 - mandatory bachelor courses ✗

Why it is important

- “just” 3 CP
- ⚡ Counts **four-fold** for your final grade!

Finding & Registering a Topic

- ⚡ Start planing **now!**
- ⚡ Have a **plan B!**
- contact professors – they must approve your choice of modules
- ⚡ Schedule in time!
- registration by examiners

Course on Scientific Integrity

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Course on Scientific Integrity

<https://www.rwth-aachen.de/go/id/mylsw/lidx/1/>

- online course
- provided via Moodle
- exam
 - online
 - twice per semester
- mandatory for all master (and PhD) students
- required for registering your thesis

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General Information

General Information

- thesis: 27 CP
- presentation: 3 CP
 - ⚡ Soon: ≤ 6 weeks after submission!
- two reviewers
 - grade: average
- 6 months

Prerequisites

- ≥ 60 CP
- requirements
- course on scientific integrity

What if I fail?

- can be repeated **once**
- ⚡ You must register for a new thesis within 3 semesters!

Registration – pa.informatik.rwth-aachen.de/application/register-thesis

- online, via request to the examination board
- examination board informs you about deadline

Finding a Topic

Where?

- CS professors only
- ⚡ no topics from industry
- ⚡ no topics from other departments
 - even if they advertise them...
 - rare exception: cross assignments
- typically within your “specialization”

How?

- check websites
- get in touch
- get connected
 - supervisor from seminar
 - supervisor from lab
 - become a student assistant

When?

- may take time
- may require training period
- ↪ start planing several months ahead

Pitfalls

- ⚡ popular specialization ↪ hard to find topics
- ⚡ professors / scientific staff may leave
- ⚡ Think about your specialization(s) **now!**
- ⚡ Have a **plan B!**
- last resort: request “support for finding a thesis” at examination board

Paperless – the Examination Board’s Online System

Paperless

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How it works

Choose non-CS modules from large catalog, including...

- Business Administration
- Electrical Engineering
- Mathematics
- Philosophy
- Mechanical Sciences
- Medical Sciences
- Physics
- Biology
- Chemistry
- Psychology
- . . .

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What they are

- Bachelor modules
- have to be done in addition to your master studies
 - no influence on standard period of study
- almost always in German

Practical Information

- listed in admission letter
- registration via RWTH Online
 - ⚡ exception: “elective course from Theoretical Computer Science”
 - ↪ register at ZPA
- no grades
- required for registering your thesis

Voluntary Additional Courses

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Voluntary Additional Courses

What can I choose?

arbitrary RWTH courses – if the examiners allow it

How does it count?

- grades on final certificate
- no impact on overall grade

Registration

- ideally RWTH Online
- otherwise: get in touch with examiners
- **have to be declared at ZPA**
 - ⚡ until 1 week after you get your last grade

Choosing Electives

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- video introductions to electives
<https://sc.informatik.rwth-aachen.de/de/wahlpflicht/>
- RWTH Online
- group websites
<http://www.informatik.rwth-aachen.de/>
- unofficial info page
<https://rwthoffline.de/>
- Go to lectures at beginning of semester!

Choosing Electives

RWTH Online – Landing Page

Desktop

Filter... ✕

 Applications	 Certificates (Documents)	 Course of Studies	 Courses	 Current/ Home Address	 Degree Programmes
 Exam Registration (available soon)	 Help	 Language Center	 Modules	 My Achievements (available soon)	 My Calendar
 My Courses	 News Ticker	 Study Overview (Curriculum Support)	 Tuition Fee	 exam dates	

Choosing Electives

RWTH Online – Courses

Home > Courses 🔍

All courses My courses My Bookmarked Courses

Courses

Organisation: **RWTH Aachen University** Term: **2018 W**

🔍 Filter by course number or course title

61.36955 Advanced Control Systems ☆ L 2 SWS Lecturer: Misgeld, Berno Johannes Engelbert	<input checked="" type="checkbox"/> Course open for registration	COURSE REGISTRATION >
61.36953 Advanced Control Systems ☆ E 1 SWS Lecturer: Misgeld, Berno Johannes Engelbert	<input checked="" type="checkbox"/> Course open for registration	COURSE REGISTRATION >
12.22387 Advanced Internet Technology (Exercise) ☆ E 1 SWS Lecturer: Thißen, Dirk	<input checked="" type="checkbox"/> Course open for registration	COURSE REGISTRATION >

- Informatik [2004], Erweiterungsprüfung Gymnasien und Gesamtschulen
- Informatik [2004], Lehramt an Gymnasien und Gesamtschulen
- Informatik [2004], Promotion
- Informatik [2009], Master (1-Subject)**
- Informatik [2009], Promotion
- Informatik [2010], Bachelor (1-Subject)
- Informatik [2010], Diplom

Choosing Electives

RWTH Online – Curriculum

Node filter-Name	Part of the Curriculum	Rec. Sem. (W/S)	Credits	Duration	WF
- [2009] Computer Science	Yes		120	4	1
- Electives	Yes				1
- Theoretical Computer Science	Yes				1
+ [1113605] Algorithmic Model Theory II	Yes		4	4	1
- [1211981] Advanced Automata Theory	Yes		6	5	1
- [121198101] Exam Advance Automata Theory	Yes	1. / -	6	0	1

Examination(s) in academic year	Part	Lecturer (Assistant)	Status	Place (1st session)	Time (1st session)
2019/20					
12.PV21965 20S 0SWS L Advanced Automata Theory			BF		

- [121198102] Exercises Advanced Automata Theory	Yes	1. / -	0	2	1
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Examination(s) in academic year	Part	Lecturer (Assistant)	Status	Place (1st session)	Time (1st session)
2019/20					
12.02776 20S 2SWS E Advanced Automata Theory		Löding C	GP		

- Lecture Advanced Automata Theory	Yes	1. / -		3	1
------------------------------------	-----	--------	--	---	---

course(s) in academic year	Part	Lecturer (Assistant)	Status	Place (1st session)	Time (1st session)
2019/20					
12.07055 20S 3SWS L Advanced Automata Theory		Löding C	GP		

+ [1212647] Advanced Model Checking	Yes		6	5	1
+ [1212657] String Processing Algorithms and Data Compression Techniques	Yes		6	3	1
+ [1216860] Algorithmic Foundations of Datascience	Yes		6	5	1
+ [1217538] Computational Geometry	Yes		6	4	1
+ [1217537] Algorithmic Learning Theory	Yes		6	5	1
+ [1113583] Algorithmic Model Theory I	Yes		8	6	1

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Where?

Partner universities!

When?

- anytime
 - 4 semesters pass by quickly
- ↪ Start planning now!

How?

- learn teaching language
 - RWTH language center
- no extension of study duration – with good planning
 - transfer of credits
 - leave of absence
- dedicated academic advisor – `student-exchange@cs.rwth-aachen.de`

<https://www.comsys.rwth-aachen.de/teaching/outgoings/>

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- [mentor program](#)
 - registration via RWTH Online
- [Center of Studies – Computer Science](#)
- [mailing list](#)
 - `msinf@lists.rwth-aachen.de`
 - you're subscribed automatically
- [Student Advice Center](#)
 - for questions that are not specific to your course of studies
 - workshops, talks, ...
- [Allgemeiner Studierendenausschuss](#)
 - university-wide student organization
- [Fachschaft](#)
 - student organization of the departments CS, Mathematics, and Physics
- [Computer Science Library](#)
- [Main Library](#)

Thank you for your attention

Any questions?